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10/553,132

10/14/2005

Raymond Hesline

HESL0101PUSA

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22045 7590 01/18/2008  
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EXAMINER

CHAPEL, DEREK S

ART UNIT

PAPER NUMBER

2872

MAIL DATE

DELIVERY MODE

01/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/553,132

**Applicant(s)**

HESLINE, RAYMOND

**Examiner**

Derek S. Chapel

**Art Unit**

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status Of Claims***

1. This Office Action is in response to an amendment received 7/27/2007 in which Applicant lists claims 1-12 as being cancelled, claim 13 as being currently amended and claims 14-20 as being previously presented. It is interpreted by the examiner that claims 13-20 are pending.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/6/2007 has been entered.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al., U.S. Patent Number 7,050,671, of record (hereafter Zhang) in view of Cai, United States Patent 6,529,326 B2, of record (hereafter Cai).

6. As to claim 13, Zhang discloses an optical device (see figure 10) comprising a first combination of birefringent prisms with parallel optic axes (see figure 10, elements 911 and 912) for dividing an input beam into polarized beams (see column 19, lines 27-67, column 20, lines 1-6 and column 21, lines 1-34), a second combination of birefringent prisms with parallel optic axes (see figure 10, elements 920A and 920D) for combining polarized beams into an output beam (see where the two polarized beams travel through birefringent prism 920A toward the etalon and where the two polarized beams travel through birefringent prism 920D toward the etalon), and a polarization changer disposed between said first combination of birefringent prisms and said second combination of birefringent prisms (see the half-waveplates and Faraday rotators that are part of elements 911, 912 and 920A-D of figure 10).

Zhang does not specifically disclose that the birefringent prisms are wedge shaped.

However Cai teaches birefringent prisms that are wedge shaped (see figure 3, elements 340 and 342 as well as column 5, lines 8-10 of Cai).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the optical device of Zhang to include the teachings of Cai so that the birefringent prisms are wedge shaped for the purpose of better separating the exiting light beams.

7. As to claim 14, Zhang in view of Cai disclose a third combination of birefringent wedges (see figure 10, elements 920B and 920C of Zhang) with parallel optic axes disposed between said polarization changer and said second combination of birefringent wedges (see figure 10 of Zhang; it is noted that 920B and 920C are spatially between the pairs of birefringent wedges and the polarization changers).

8. As to claim 15, Zhang in view of Cai disclose that wedges of at least one combination of birefringent prisms are arranged about at least one reflector or refractor (see the etalons and polarizing beam splitters (930 and 931) in figure 10 of Zhang).

9. As to claim 16, Zhang in view of Cai disclose that wedges of at least one combination of birefringent prisms are arranged about a polarization changer (see the polarizing beam splitters (930 and 931) and the waveplates and Faraday rotators of figure 10 of Zhang).

10. As to claims 17 and 19, Zhang in view of Cai disclose that at least one polarization changer of said device is a nonreciprocal polarization changer (see the Faraday rotators in figure 10 of Zhang; it is noted by the examiner that the device of Zhang in view of Cai meets the structural limitations of claims 13, 17 and 19 and therefore fits the label of an "optical isolator" or "optical circulator" as set forth by the Applicant's limitations).

11. As to claims 18 and 20, Zhang in view of Cai disclose that at least one polarization changer of said device is a reciprocal polarization changer (see the waveplates in figure 10 of Zhang; it is noted by the examiner that the device of Zhang in view of Cai meets the structural limitations of claims 13, 18 and 20 and therefore fits the label of an "optical attenuator" as set forth by the Applicant's limitations).

### ***Response to Arguments***

12. Applicant's arguments filed 11/6/2008 have been fully considered but they are not persuasive. Cai was not replied upon to show a pair of birefringent wedges with parallel optical axes. Zhang disclosed pairs of birefringent crystals with parallel optical axes (see the rejection set forth in section 5 above). Cai was merely relied upon to show that the birefringent crystals of Zhang could be cut to be wedge shaped as illustrated by Figure 10 of Zhang as modified by the examiner and set forth below.

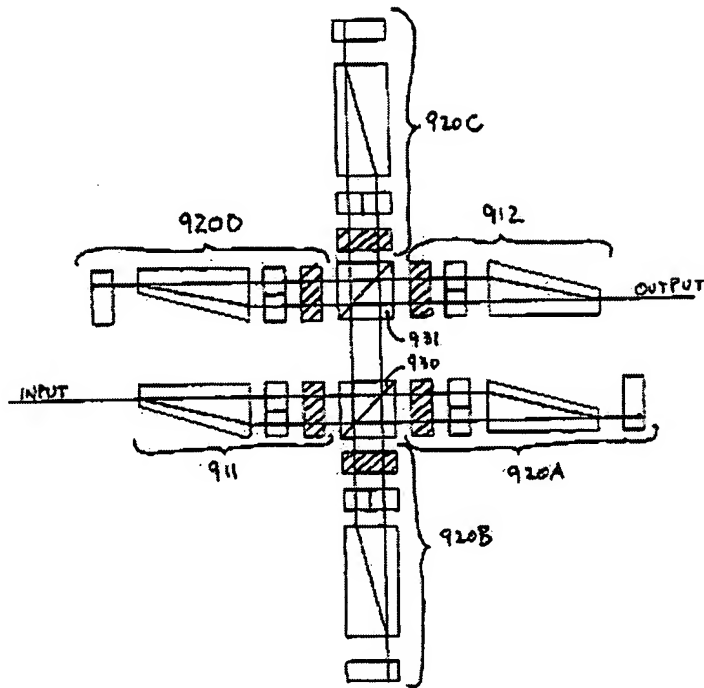


FIG. 10

***Other Related Art***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. Hesline, U.S. Patent Number 5,864,428 (hereafter Hesline) shows how two wedge shaped prisms with parallel optical axes can be used as a polarization beam splitting device (see figure 4, elements 31, 35 and column 3, line 46 through column 4, line 6).

***Conclusion***

15. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek S. Chapel whose telephone number is 571-272-8042. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The

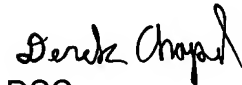



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fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
DSC  
1/12/2008

  
Stephone B. Allen  
Supervisory Patent Examiner